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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/844,293      | 04/26/2001  | Subhas Bothra        | 020408-001200US     | 1043             |

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EXAMINER

WILLIAMS, ALEXANDER O

ART UNIT PAPER NUMBER

2826

DATE MAILED: 09/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/844,293

Applicant(s)

BOTHRA

Examiner

Alexander O Williams

Art Unit

2826

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 15 July 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 9-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

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Art Unit: 2826

Serial Number: 09/844293    Attorney's Docket #: 020408-001200US

Filing Date: 4/26/01;

Applicant: Bothra

Examiner: Alexander Williams

Applicant's election of Group I (claims 1 to 8) in Paper # 5, filed 7/15/02, has been acknowledged.

This application contains claims 9 to 14 drawn to an invention non-elected without traverse in Paper No. 5.

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

The disclosure is objected to because of the following informalities:

Appropriate correction is required.

The drawings are objected to because

Correction is required.

Claims 1 to 8 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, it is unclear and confusing to what is meant by "a second capacitor metal plate layer under said second capacitor dielectric layer and over and removed from said first capacitor metal plate layer.

In claim 1, line 13, should the last "and" be removed?

Any of claims 1 to 8 not specifically addressed above are rejected as being dependent on one or more of the claims which have been specifically objected to above.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:  
A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1, **insofar as they can be understood**, is rejected under 35 U.S.C. § 102(e) as being anticipated by Aitken et al. (U.S. Patent # 6,159,787).

For example, in claim 1, Aitken et al. (figures 1 to 1c) specifically figure 11O and 11N show a integrated circuit having a substrate and plurality of stacked metal layers thereover, said metal layers delineated as interconnections for said integrated circuit, a capacitor structure between adjacent stacked metal layers comprising: a portion of a first selected one of said stacked metal layers **326A** and a portion of a second selected one of said stacked metal layers, said second selected stacked metal layer portion above and adjacent said first selected stacked metal layer portion; a first capacitor metal plate layer **336B**; a second capacitor dielectric layer (**portion under 356B side**); a second capacitor metal plate layer; and a metal capacitor via layer **346A**; and a first via connecting said first selected stacked metal layer portion and said second selected stacked metal layer portion to form a second terminal of said capacitor **structure (see column 3, line 49 to column 4, line 39 and column 9, lines 33-49)**.

Claim 2, **insofar as it can be understood**, is rejected under 35 U.S.C. § 103(a) as being unpatentable over Aitken et al. (U.S. Patent # 6,159,787) in view of Applicant's Prior Art Figure 1a to 3B.

Aitken et al. show the features of the claimed invention as detailed above, but fails to explicitly show at least one of said first or second stacked metal layers comprises a plurality of stacked, contiguous metal layers of differing composition.

Applicant's Prior Art Figure 1a to 3B discloses at least one of said first or second stacked metal layers comprises a plurality of stacked, contiguous metal layers of

differing composition for the purpose of reducing the size of topography capacitors integrate easily into current device processing.

Therefore, it would have been obvious to one of ordinary skill in the art to Applicant's Prior Art figures 1a to 3B stack metal layers to modify Aitken et al.'s stack layers for the purpose of reducing the size of topography capacitors integrate easily into current device processing.

Claims 3 to 8, **insofar as they can be understood**, are rejected under 35 U.S.C. § 103(a) as being unpatentable over Aitken et al. (U.S. Patent # 6,159,787) in view of Hoshiba (U.S. Patent # 5,506,748).

Aitken et al. show the features of the claimed invention as detailed above, but fails to explicitly show the first capacitor dielectric layer and the first capacitor metal plate layer are laterally co-extensive.

Hoshiba is cited for showing a capacitor for a semiconductor integrated circuit. Specifically, Hoshiba (figures 1 to 7) specifically figures 1 to 3 discloses show the first capacitor dielectric layer and the first capacitor metal plate layer are laterally co-extensive (see column 3, lines 8-12, lines 39-54) (column 4, lines 3-24, lines 36-49) for the purpose of designing a capacitor smaller to meet the requirements of high density integration.

Therefore, it would have been obvious to one of ordinary skill in the art to Hoshiba's dielectric layer and plate layer to modify Aitken et al.'s layers for the purpose of designing a capacitor smaller to meet the requirements of high density integration.

The listed references are cited as of interest to this application, but not applied at this time.

| Field of Search   | Date    |
|---|---------|
| U.S. Class and subclass:<br>257/532,296,300-306,295,71,906,68,522                               | 9/16/02 |
| Other Documentation:<br>foreign patents and literature in 257/532,296,300-306,295,71,906,68,522 | 9/16/02 |
| Electronic data base(s):<br>U.S. Patents EAST   | 9/16/02 |



***Papers related to this application may be submitted to Technology Center 2800 by facsimile transmission. Papers should be faxed to Technology Center 2800 via the Technology Center 2800 Fax center located in Crystal Plaza 4-5B15. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Technology Center 2800 Fax Center number is (703) 308-7722 or 24. Only Papers related to Technology Center 2800 APPLICATIONS SHOULD BE FAXED to the GROUP 2800 FAX CENTER.***

Any inquiry concerning this communication or any earlier communication from the examiner should be directed to ***Examiner Alexander Williams*** whose telephone number is **(703) 308-4863**.

Any inquiry of a general nature or relating to the status of this application should be directed to the ***Technology Center 2800 receptionist*** whose telephone number is **(703) 308-0956**.

9/17/02



Primary Examiner  
Alexander O. Williams